PATENT

Attorney Docket No. 3495.0010-20

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Marc ALIZON et al.	)	
	)	
Serial No.: 08/308,219	)	Group Art Unit: 1804
	)	
Filed: September 19, 1994	)	Examiner: Railey, J.
	)	
For: DNA SEQUENCE OF THE LTR REGION OF HUMAN IMMUNO-DEFICIENCY VIRUS TYPE 1 (HIV-1) (as amended)	)	

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

RESPONSE TO PAPER NO. 17

In response to the Office action mailed February 6, 1995, applicants submit the following remarks for reconsideration and reexamination of this application.

The specification is objected to and claims 11 and 12 rejected under 35 U.S.C. § 112, first paragraph, as the specification allegedly fails to teach how to make and/or use the invention. The objection and rejection are respectfully traversed.

In the Amendment filed August 16, 1994, in the parent case, applicants demonstrated that one of ordinary skill in the art would have no reason to doubt the use of the claimed invention as a hybridization probe for HIV-1 sequences, especially in view of Hahn et al. Furthermore, applicants submitted evidence

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(Exhibits 1 and 2) which would lead one of ordinary skill in the art to expect the claimed invention to detect the presence of HIV-1 in a hybridization assay. Applicants specifically incorporate by reference this demonstration and the evidence into this response.

While the Examiner has not responded to the evidence submitted, at page 2 of Paper No. 17, the Examiner states that "applicants' specification fails to describe hybridization assays which would allow distinction between HIV-1 and other lentiviruses, such as HIV-2 or SIV (STLV-III)." However, there is no reason under the patent laws why applicants need specifically describe such characteristics for the claimed nucleic acids. The claims do not recite such characteristics and the standard for enablement does not require that every particular use that can be envisioned be specifically disclosed and taught in a specification. One use suffices, and applicants have met that burden. For these reasons, elaborated upon below, the objection and rejection are in error and should be withdrawn.

For a proper analysis of the enablement requirement, the test has been clearly set forth by the Federal Circuit.

> The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. Hybritech Inc. v. Monoclonal Antibodies, Inc., 231 U.S.P.Q. 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 987 (1987).

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Claims 11 and 12 recite a nucleic acid having a particular sequence, or the same nucleic acid which is labeled. Therefore, one must ask whether these nucleic acids could have been made or used by one of ordinary skill in the art. The answer is clearly yes, whether or not the applicants specifically disclose the single, particular "use" searched for by the Examiner.

The specification clearly states one use for the claimed invention as hybridization probes or in hybridization assays. Indeed, the specification begins with a discussion of such a use (at page 1, lines 7-11) and goes on to elaborate (at page 14, line 17 through page 15, line 14) with details of this use. This practical use is enough to satisfy any requirement of utility in 35 U.S.C. § 112, first paragraph. *See* In re Ziegler, 26 U.S.P.Q.2d 1600 (Fed. Cir. 1993). In Ziegler, the specification was not enabling because there was no mention of any intended, practical use or even a disclosure of any characteristics that would demonstrate utility. Clearly, applicants' specification meets this standard and is enabling for the claimed invention.

Furthermore, the recent Federal Circuit decision of In re Brana, 34 U.S.P.Q.2d 1436, 1442 (Fed. Cir. 1995), reads in the analysis of the "use" aspect of 35 U.S.C. § 112, first paragraph: "Usefulness in patent law, and in particular in the context of pharmaceutical inventions, necessarily includes the expectation of further research and development." This is the appropriate standard for analysis here as well. Therefore, the

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applicants need not demonstrate or disclose a "use" that is commercially important or marketable in order to meet the requirements of 35 U.S.C. § 112, first paragraph.

Indeed, applicants' claimed nucleic acids can be used to clone the HIV-1 genome, as disclosed and taught in the specification at page 4, line 17 through page 5, line 24. Clearly, one of skill in the art recognizes the importance and value of this use as presently disclosed and taught as well as the use it has in further research and development. Without such a use to clone HIV-1, many advancing areas in the field of HIV-related diseases and HIV-1 in particular would halt. Therefore, through this disclosed and taught use, *inter alia*, applicants' specification enables the claimed invention under 35 U.S.C. § 112, first paragraph.

The Examiner now cites two additional documents, Guo et al. (Guo) and Clavel et al. (Clavel), in support of the objection and rejection. These documents again only address the "distinction between HIV-1 and other lentiviruses" argument discussed above. While these documents cannot properly support the objection and rejection as shown above, applicants will address them below as they touch on the scope of the claimed invention.

The Examiner asserts that Guo notes an overall homology between the SIV and HIV-1 long terminal repeats (LTR) of 45% (see page 3 of Paper No. 17). However, nowhere within the four corners of Guo is there any discussion of any assay or attempt

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to test the ability to distinguish between the SIV and HIV-1 sequences. If evidence exists within the Examiner's personal knowledge, it should be presented in the form of an Examiner's Affidavit under 37 C.F.R. § 1.107(b) so that applicants may properly respond to it.

The Examiner asserts that Clavel, at Figure 3, shows that the 3'LTR of HIV-1 hybridizes "well to HIV-2 under non-stringent conditions." Paper No. 17 at page 3. Again, there is no discussion of any assay or attempt to test the ability to distinguish between the HIV-2 and HIV-1 sequences. As above, evidence in the Examiner's personal knowledge should be submitted as an Examiner's Affidavit.

In fact, the discussion in Clavel Figure 3 would not indicate to one of skill in the art a failure of the claimed invention to distinguish between HIV-1 and HIV-2. As is the case in the Hahn et al. (Hahn) document, cited by the Examiner in Paper No. 10 at page 3, Clavel evidences an attempt to show cross-hybridization.

In the legend of Figure 4, under "Methods:", Hahn clearly states that the "four replica filters were prepared and hybridized for 36 h under **low stringency**...." (emphasis added). Low stringency, one of ordinary skill in the art would know, generally leads to greater cross-hybridizing results.

By using the low stringency hybridization conditions, Hahn is obviously attempting to show cross-hybridization between each of the "members of the HTLV family." The text of Hahn, at the

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bottom of page 168, indicates such an attempt in order to "evaluate sequence homology."

Since the goal of the experiment is to show homology through cross-hybridization, Hahn does not attempt and cannot be read to show whether or not specific hybridization is possible with the claimed invention herein. Hahn et al. simply did not attempt an experiment which could show that possibility. Figure 4 of Hahn, therefore, cannot support the Examiner's conclusion.

Similarly, Clavel uses "**low stringency** conditions" (see the description of Fig. 3), which the Examiner identifies as "non-stringent conditions" at page 3 of Paper No. 17. Therefore, Clavel also does not attempt and cannot be read to show whether or not specific hybridization is possible with the claimed invention herein.

Finally, as one of ordinary skill was familiar with the conditions that can be varied in order to develop a hybridization assay for a particular sequence using the claimed invention, applicants need not specifically set forth hybridization conditions for every use that can be envisioned. The development of specific assays once the probe is disclosed employs routine experimentation, such as described in the Scotto et al. document, Hepatology, 3;279 (1983) (enclosed and noted on the accompanying form PTO 1449). Thus, no undue experimentation would be required for using the claimed invention as a hybridization probe.

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As no countervailing evidence or reasons is provided that would lead one of skill in the art to doubt that the claimed invention could be used to distinguish between HIV-1 and other lentiviruses in hybridization assays, there is no legitimate basis to doubt that the specification provides a proper use of and an enabling disclosure for the claimed invention. Applicants respectfully request withdrawal of this ground for objection to the specification and rejection of the claims.

Applicants respectfully solicit the prompt issuance of a Notice of Allowance.

The Commissioner is hereby authorized to charge any fees associated with this response to our Deposit Account No. 06-0916. If a fee is required for an Extension of Time under 37 C.F.R. § 1.136 not accounted for above, such extension is hereby requested and should also be charged to our Deposit Account.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER

By: _____
David J. Kulik
Reg. No. 36,576

Dated: August 4, 1995

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FINNEGAN, HENDERSON,
FARABOW, GARRETT
& DUNNER, L.L.P.
1300 I STREET, N. W.
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